THE PROBLEM AND OPPORTUNITY WITH ABC IN A MANUFACTURING CONCERN IN HONG KONG

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ABSTRACT

This paper will present the increasingly adopted Activity-based Costing (ABC) system, through an extensive literature review. Some Western cases in the manufacturing industry and service sector as well as two comprehensive surveys are elaborated.

Comparisons between Western and Asian contexts on ABC implementations have been made. The causes for the relatively slow rate of Asian implementation are suggested to be the organization and culture factors.

Not much regional survey has been done and published, owing to the limited successful cases in Asia. Therefore, a field study is carried out on a local hi-tech company which is considering ABC system. The study tries to find out the reasons, resistance, threats and opportunities of ABC implementation.

As global competition is keen and good customer-supplier relationship is the bottom line for lasting business, the use of ABC will offer unlimited rewards.

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CHAPTER I

INTRODUCTION

Purpose

A good costing system facilitates strategic decisions, including pricing, sourcing, and the introduction of new products. In the traditional cost accounting system, the manufacturing costs are usually assigned to the products based on their direct labour content; there is no consideration about other activities they actually involved. This method may have been useful in the past because most of the companies were labour intensive then and the product variations were small. Today, due to advanced technology, the percentage of direct labour in total costs has decreased and most of the products involve complex activities during the production process. Overhead functions such as the product design, the quality control, the customer service, the production planning and the sales order processing are as important to the company as the physical processes on the shop floor.

Dated back to 1964, Peter Drucker in the "Managing for Results"[1] related results areas, that is, products, customers and markets, to the revenue contributions they realized and to the share of the cost burden they generated. In regards to cost burden allocations, he purported that "distribution according to transaction is the only close approximation to the behaviour of cost of work not focused on and carried out by an identifiable unit of production."

He followed that "in a given business, there may well be different transactions that could serve as the unit of cost, for example, number of invoices, number of service calls to help customers and product modifications for specific uses may each be claimed to be the representative unit of transactions and the true measurement of cost." Therefore, important management decisions is to define the product and the appropriate transaction.

J. Miller and T. Vollmann in "The Hidden Factory"[2] pointed out that the change in the component of value added : Overheads increased from 50% to 75% of total value-added and direct labour decreased from 50% to 25% from 1940 to 1980s. Thus, the importance of overhead cost control was highlighted and deserves serious attention. In 1986, a major American cost study, the Cost Management Systems (CMS) program of Computer Aided

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[1] Peter Drucker, Managing for Results, Economic Tasks and Risk-taking Decision, William Heinemann, 2nd Edition, 1982.

[2] J. Miller and T.E. Vollmann, "The Hidden Factory", Harvard Business Review, September 1985, pp.142-149.

Manufacturing International (CAM-I), highlighted the fact that information provided by traditional cost statements had become outdated and unreliable, because traditional costing methods just did not reflect the realities of modern business.

The marketplace is more competitive now and most sectors face global competition. Every business should be able to assess the true profitability of the sectors it trades in, understand the product costs and know what drives the overheads. Academic accountants have argued that variable costs represent the relevant costs that should be used for product decisions. In order to obtain accurate product costs, short-term variable costs should be traced to products using volume-related cost drivers while long-term variable costs should be traced with non-volume related measures at the level consumed.

Activity-based costing (ABC) has been heavily recommended during the past several years as a means of understanding the overhead costs that are an increasingly important element of total product costs. Fixed overheads are allocated to the products according to the activities. ABC can help to control and to manage costs by understanding the events and activities which 'drive' them. ABC also assesses the implications of all business costs in the decision-making process by tracing costs as accurately as possible to cost units.

The activity-based cost (ABC) is used mostly by the US-based or UK-based companies, and, it is not widely used in Asian

Pacific regions like Hong Kong. In this paper, a Hong Kong case study is examined. We will look at the psychological impact, in additions to the opportunities and threats, of a new ABC system implementation and why some companies under one corporate culture would use ABC approach, and why the other would fail to do so.

Scope

The case study is developed with a Hong Kong listed hi-tech manufacturing concern with a production plant in PRC. Eighty percent of its capacity is sub-contracted to an Original Equipment and Machinery (OEM) customer, who pressures it to use ABC costing method because the customer wants a better pricing picture through an improved cost structure of the company. A substantial portion of the total cost, some 30% belongs to fixed overheads or about 60% of the total value-added, a key pre-requisite for the ABC method.

METHODOLOGY

The paper will continue with a critical view on major publications on ABC, a lot of which are quite recent since the method itself emerged in late 80s and early 90s. A brief history of ABC is presented, and the paper will follow with an outline of the model.

Some interesting and successful ABC cases of U.S. companies are identified and extracted with a view to contrast to the Asian Pacific regions implementation in general, and Hong Kong in particular. Differences in organization behaviour are suggested to be one key determinant to its success or failure. Unfortunately, the author has only found two unpublished regional papers on this subject area.

A case study is done on a Hong Kong manufacturing plant which is in the process of evaluating the implementation of ABC. The reasons, resistance, threats and opportunities of carrying the plan through will be examined. Personal interviews are conducted with PMC manager, Purchasing manager, director of Engineering in additions to F&A staff. Interviews are used instead of questionnaires because the former would allow the interviewees' response and attitude to be observed as well as to facilitate inquiries for further details on the spot. It might be difficult to apply standard questionnaires to different disciplines and industries and the response rate would be low. An informal contact has been made to the customer to find out why he insists on the ABC approach for the company.

Unfortunately, only a few regional cases can be found in the area of ABC. This is the reason why a local survey on this subject is extremely difficult, if not impossible. This paper, being exploratory in nature, hopes to prompt interested readers and academics to further research in this increasingly adopted costing methodology.

Revision of Original Plan

Originally, the author planned to carry out a survey to evaluate the extent of ABC implementation in Hong Kong. A questionnaire was sent to all three year part-time MBA students with a view to understand how widely the system is known among local business participants. Unfortunately, none has heard of the system, except in a MBA costing class.

This explains why so few successful stories are identified in the Asian context. In view of this situation, the author decided to do a field study on a particular company, which is considering whether to adopt the system. The revised plan proves to be equally enlightening, for it highlights the typical problems encountered by a Chinese company while trying to implement a new system.

CHAPTER II

LITERATURE REVIEW

Introduction

One of the main purposes of a cost accounting system is the provision of product cost information. Many surveys on pricing policy have reported that product costs play an important role in setting prices. This is particularly true for customized products that do not have readily available market prices. In competitive markets, selling prices are determined by competition and outside the control of the supplier. However, a firm that knows its products costs can concentrate on the most profitable product mix and avoid loss-making activities. It can also have the information on the cost of each activity. If some of the activity costs come out to be large, then the management can go to investigate what the cause is. Thus, they can control the cost at each activity level.

Overhead costs have risen as a proportion to total cost, and

the increased computer power is now readily available to perform statistical analysis to estimate cost trend and relationship among variables. An improved cost reporting system makes the difference between profitable and unprofitable operations. The continuance of the traditional standard cost approach for overhead analysis might well be out-dated without regard to underlying cost drives.

Activity-based costing is appropriate for product cost determination, the same cost drivers should be equally relevant for cost control applications and process improvements.

Brief history of ABC

In the mid-1980s, Harvard Business School, Professor Robert Kaplan and Robin Cooper pioneered the newest revolution in cost and managerial accounting, namely, the activity-based costing (ABC)[3]. It attempts to trace all product costs to the activities, value added or not. The method assumes activities consume resources and products consume activities, and it is crucial to identify the cost drivers.

Kaplan and Cooper claimed that volume-related cost drivers such as direct labour hour and machine hour were inappropriate for allocating most long-term variable costs into products

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[3] Drury Colin., "Activity-Based Costing", Management Accounting (UK), Sep 1989, pp.60-63.

because these costs were driven by complexity and diversity, not by volume. Also, the traditional distinction between fixed and variable costs did not provide enough information to design a cost system. They suggested that variable costs should be analyzed between short-term and long-term costs. Short-term variable costs, those costs that traditional cost systems labelled as variable costs. They were volume-related and changed proportionately with the volume of production. The long-term variable costs were those costs that traditional cost systems labelled as fixed costs. They varied with measures of activity but not instantaneously, for example, the number of set-ups, the number of receiving orders, the number of packing orders and the number of production orders, etc. Managers could increase the profitability by getting rid of the unprofitable customers and products or by transforming them into profitable ones.

Professor Kaplan stated that the ABC analysis could be used in conjunction with process improvements. By measuring the costs of business processes such as purchasing, taking a sales order, moving materials, and inspection, people in some companies for the first time have seen how costly some of these activities are. They can direct their improvement efforts to reduce the cost of performing many of these activities. Even better, they are attempting to understand some of the fundamental drivers of these activities and perhaps to eliminate the need of performing some activities. ABC has taken off to gain popularity among many big-named manufacturing set-ups and companies in service sectors. The survey of CMA and CIMA are only made possible because of the

existence of established ABC users. Selective cases are listed below:

ABC provided an important tool for measuring the efficiency of a payroll department. During 1990, at Weyerhaeuser[4] (Tacoma, Washington), ABC was used to improve the departmental efficiency and to reduce operating costs. All departmental employees participated in each phase of the progress. Out of 111 ideas identified during brainstorming sessions, 12 proposals were selected for implementation, with a projected annual cost saving of over half a million. Cost profiles were developed on an annual basis so that activity and transaction cost trends could be monitored and employees could see the impact of their efforts. It has indicated the impact of implemented ABC in a single department and ABC can be expanded to all level of organization as shown in the next case.

Caterpillar's[5] financial people long ago recognized the need for and the potential competition advantage of having the ability to cost products reliability. Caterpillar produced a variety of large, complex products at varying volume levels using many manufacturing processes. ABC was implemented in early 1990s to assign costs based on how the product consumed activities along the production flow and assigned costs to each operation. Their philosophy was that the entire organization must "own" the

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[4] Brian Pederson, "Weyerhaeuser : Streamlining Payroll", Management Accounting, October 1991, pp.38-41

[5] Lou F. Jones, "Product Costing at Caterpillar", Management Accounting, February 1991, pp. 34-42

cost system and be involved in keeping the databases accurate and up-to-date. The need for a total organization commitment was demonstrated.

Cost competition among defense contractors intensified as a result of changes in U.S. Department of Defense (DOD)'s procurement policies, and current global politics. Hughes Aircrafts[6] brought in ABC during late 1980s and evolved its system carefully over a period of 5 years, it recognized that activities rather than the products were the absorbers of cost. The company's goal was to obtain accurate product cost information. The importance of correct product costing in view of global competition is highlighted here.

ABC is not only being used in manufacturing environment; moreover, it is being implemented in service sectors like Banking, Insurance, and Health Care industries.

In the Banking industry, deregulation and new entrants caused unprepared firms the increasing risk of loss-making client relationship, British securities house Barclays de Zocte[7] responded to poor cost accounting information and adverse conditions in the industry by developing Beatrice, an innovative information system, that combined ABC principles and a model of

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[6] J. Haedicke and D. Feil, "Hughes Aircraft Sets the Standard for ABC", Management Accounting, February 1991, pp.29-23

[7] N. Stuchfield and B.W. Weber, "Modelling the Profitability of Customer Relationships : Development and Impact of Barclays de Zocte Wedd's Usage", Journal of Management Information System, Fall 1992, pp.53-76

customer profitability for securities industry to improve the management process and decision making system. ABC is evolved to be a helping tool in the financial sector.

Property and casualty insurance were a highly cyclical business in the mid-1980. The U.S. Fireman's Fund[8] faced same service challenge. Severe price competition in the industry reduced the revenue needed to cover the soaring costs. Fireman's fund implemented a costing system which identified the revenue by product lines as well as the various cost components. Moreover, these efforts helped the company to gain a clearer understanding of how employees spent their time, and thus identify and eliminate no value added activities.

ABC also applied to hospital cost accounting[9] in determining the standard full-cost per service unit provided by hospital. By applying ABC, health care organization can now identify non-value added activities of patient services that consume resources. Health care administrators are able to better plan and control the costs of health services that are provided ,and to make strategic decisions in the wake of shrinking revenue sources and growing expenses.

The list can go on and on. In fact, during the search of

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[8] M. Crane and J. Meyer, "Focusing on True Costs in a Service Organization", Management Accounting, Feb 1993, pp.41-45

[9] M.A. Helmi and M.N. Tanju, "Activity-based Costing May Reduce Costs, Aid Planning", Healthcare Financial Management, Vol 45, No.11, Nov 1991, pp95-96

the ABI system, the computerised searching system for periodicals used in the library of the Chinese University of Hong Kong, a total of over 200 articles on ABC topic were found, with almost a third of them contains case-related materials or successful implementation cases in the U.S. and the U.K. None of which however refers to local case. It reflects the relative maturity of the two environments, namely, Western and Asian. This paper will further discuss this in the next chapter. Nonetheless, a few comprehensive Western surveys were done on this topic:

In the CIMA (Chartered Institute of Management Accountants of U.K.) funded study[10] during 1990, John Innes and Falconder Mitchell reported that ABC was a procedure of widespread interest to practising management accountants. The survey was undertaken by mailed questionnaires in September 1990 with replies received up to the end of December 1990. Some 720 questionnaires were mailed to CIMA members and 187 usable replies were received, giving an overall response rate of 26 per cent. The questionnaire was sent to individuals who were employed by different UK-based organisations either in the manufacturing or in the financial services sector. They were required to respond in respect of their organizations's experience with ABC. The purposes of the study were as follows:

1. To obtain some insights about the scale of ABC interest in the U.K.

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[10] Innes, John; Mitchell, Falconer, "ABC: A Survey of CIMA Members", Management Accounting (U.K.), Oct 1991, pp.28-30

2. To provide some evidence on the extent to which ABC has been considered, rejected and adopted by U.K. organization both in the manufacturing and in the financial services sectors.

3. To obtain some preliminary information on the nature of ABC developed in practice and on the perceived benefits and limitations.

The finding was that out of the 187 responses, a slightly over half had not yet seriously considered ABC, around one-third were currently studying it, while 6 per cent had commenced implementation, though somewhat more, 9 per cent, had rejected it outright.

Although the initial reject rate appeared surprisingly high it must be noted that 15 of the 17 organizations rejecting ABC did so without any first-hand practical experience. However, the negative response of organization to ABC, whether based on experience or merely on assessment, was an aspect worthy of closer study, as questionnaire-based research is limited in the depth of response and in the detail which can be obtained.

For the one-third of the respondents that were currently assessing ABC. The most common reason that the companies would implement ABC was that ABC lied in its perceived ability to deliver more accurate product line costing. Other responses indicated its importance being attributed to the linkage of cost

to the alternative object of the customer, to the improved cost control aspects of the ABC approach, to its behavioral impact on product designers and to the insights that it can provide on cost causation. In addition, they used ABC because of the following needs:

1. To improve the accuracy of product cost for pricing,

2. Product line profit analysis to improve performance in a very competitive environment,

3 To overcome existing deficiencies of traditional costing practices.

Another survey was published in the Issues Paper of Certified Management Accountants (CMAs) by Paul A. Sharman and Murray J. Bryant[11] on Canadian practice with regards to ABC, and the comparison of the practice in Canada to those in the United States and the United Kingdom. The two-page questionnaire was mailed on 15 June, 1992 to the controller of 702 large organizations based in Canada. The questionnaire was accomplished by a cover letter that explained the purpose of the research study. A follow-up letter was sent to non-respondents two weeks later, on 29 June, 1992. A total of 352 usable responses were received, giving an overall response rate of 50%. The four purposes of the study were the followings:

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[11] R. Nicholson, P.A. Sharman, and M.J. Bryant, "Activity Based Costing", The Society of Management Accountants of Canada, Management Accounting Issues Paper 3, 1993

1. To provide evidence on the extent to which ABC has been considered, and either adopted or rejected by large Canadian companies.

2. To obtain some preliminary evidence on the nature of ABC development in practice.

3. To determine the perceived benefits and limitations of ABC from the perspective of the practitioners.

4. To compare the results of this survey with similar surveys conducted in the United States and the United Kingdom.

The survey findings were that 37% of the respondents had not considered ABC and another 30% of the organizations responding surprisingly had not even heard of ABC, 15% were currently assessing ABC, 4% had considered ABC and had decided not to use it, and 14% had implemented, or were implementing ABC. Twelve key points are summarized based upon the results of the study:

1. ABC is in its early stages of development in Canada, 70% of the respondents had heard of ABC; however, less than one third of the respondents were either assessing ABC (15%) or had implemented ABC (14%).

2. The development of ABC in Canada appears to lag behind that is in the United States, and the patterns of ABC

development in the United Kingdom are different from those in the United States and in Canada. This point would be further explored in the next chapter.

3. ABC has had a high acceptance rate form Canadian organizations that have assessed it. Almost 80% of the respondents that had assessed ABC had implemented ABC systems.

4. ABC systems appear to meet organizational expectations on accurate profit analysis by products, product costing and improved cost control.

5. Large organizations are more likely to have implemented ABC systems, whereas small organizations are more likely not have considered ABC and not to have heard of ABC.

6. ABC is in different stages of development in different industry sectors. Manufacturing organizations are more likely to have implemented ABC and to have heard of ABC than other industry sectors.

7. ABC systems are mostly used to supplement existing costing systems. ABC systems in Canada are primarily partially implemented systems that supplement existing conventional costing systems.

8. The major reasons for not adopting ABC were related to both product and organization issues. For example, the lack of

management commitment in a competitive product/service environment would not benefit from the ABC system.

9. The major problems encountered during the design and implementation of ABC were technical in nature such as difficulty in defining activities, selecting cost drivers and allocating costs to activities that truly reflect cost causation.

10. There are differences in the types of personnel used by organizations to assess, design and develop ABC systems. Accountants play a key role in both assessment and development; whereas, senior managers are in the assessment stage, and personnel as well as external consultants are in the system design phase.

11. Organizations in the different stages of ABC development had different perceptions about the accuracy of their cost information. Organizations that are currently assessing ABC are more likely to doubt the accuracy of their existing cost information than other organizations.

12. Organizations that have not implemented ABC use conventional budgets to control overheads.

In the empirical study of cost drivers in the U.S. Airline

Industry[12], a statistical analysis was employed to co-relate cost to volume-based decisions or operations-based decisions. The findings have demonstrated that they are both significantly related to manufacturing overhead costs.

Definition of ABC

Up to now, there are several people who defined ABC, an extract of some is shown below:

The Computer Aided Manufacturing-International (CAM-I-1990) organization of co-operative research, Texas, defined ABC as "A methodology that measures the costs and performance of activities, resources and cost objects, assigns resources to activities and activities to cost objects based on their use, and recognizes the causal relationships of cost drivers to activities".

M. E. Beischel (1990)[13] said that, "ABC assigns costs to products based on their consumption of activities, such as order preparation, storage time, wait time, engineering changes and internal product movements. It provides companies with better products costs."

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[12] R.D. Banker and H.H. Johnston, "An Empirical Study of Cost Drivers in the U.S. Airline Industry", The Accounting Review, Vol 68(3), July 1993, pp.576-601.

[13] Mark E. Beischel, "Improving Production with Process Value Analysis", Journal of Accountancy, Sep 1990, pp.53-57

According to Johnson (1990)[14], "the activity cost accounting (ACA) and ABC approaches are unlike traditional management accounting practice in the way that they compile cost information according to activity not to the volume. This difference discourages users of ABC information from mindlessly linking cost variations to variations in output volume. This cost-oriented approach to activity information encourages managers to think of costs with human activities, and of drivers that cause costs."

Although ABC systems offer better product cost data than volume-based system, they are based on two underlying assumptions, the costs in each cost pool are driven by homogenous activities and the costs are strictly proportional to the activities. Indirect product costs are described as bill of activities and statistical methods such as regression analysis can be used to identify the underlying relationship between activities and its related costs.

ABC Model

ABC is emerging as a technique for general economic analysis of all overheads or indirect costs that are not volume related, according to the technical paper on ABC issued by CMA in 1993. It has two major objectives:

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[14] H. Thomas Johnson, "Professors, Customers and Value: Bringing a Global Perspective to Management Accounting Eduction", Management Accounting, 1990, pp.28-29

1. To obtain more accurate data on product, process, and service costs; and

2. To identify the relative costs of activities and the reason those activities are undertaken.

In both cases above, the value of the information lies in its potential application by managers on day-to-day decision making such as pricing, new product introduction or abandonment, and the identification of productivity improvement opportunities.

An logical diagram of activity-based costing model was developed by Norm Raffish[15] in his March 1991, Management Accounting article as presented in Figure 1. He thinks that the three key areas of ABC are product cost differentiation, activities and their cost drivers, and identification of non value-added cost improvement opportunities. An activity, for instances, may be defined as a particular operation in the production cycle, or it can be defined as the entire material acquisition process.

In ABC logical model, the cost view indicates the general flow of costs. For example, the resources assign to the inventory control activity will be directly traced or allocated to particular products based on some causal relationship. Differently, the process view indicates the flow of information

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[15] Norm Raffish, "How Much Does That Product Really Cost?", Management Accounting, March 1991, pp.36-39

and transactions, such as the receipt of material on the dock, which triggers the inventory handling activities. Besides, information such as the number of moves, how many times orders are moved, and the costs per move are obtained for performance analysis. Figure 2 shows the expanded examples of the model.

A company called ABC Technologies, a major supplier of ABC software in the US, categorized the applications of ABC into four distinct groups called, ABC decision matrix[16], as shown in Figure 3. In each box, the types of decisions that are being made based on ABC information varies dramatically. The axes of the matrix describe two dimensions of the decision type. For example, in box B, we use cost data to determine which markets and/or customers are the most profitable. The decisions affect turnover and are classified as a strategy of long-time nature.

Likewise, in box C, we might use ABC information to decide how to prioritize 'waste' reduction activities as part of a continuous improvement programme. This decision is usually about short term cost reduction opportunities.

In developing an ABC model, it can help managers to set priorities to measure where most of the dollars are being spent, what the fundamental drivers of those processes are, and where they can get big payoffs by redesigning activities and by choosing the right product mix.

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[16] E.B.Peterson, "Learning your ABCs", CGA Magazine, Jan 1992, pp.42-49

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MATHS	*GRADE 'D'*
CHINESE LIT.	*GRADE 'E'*
ECONOMATIC	*GRADE 'E'*
ART	*GRADE 'E'*

Figure 1

Activity-Based Costing Logical Model
Cost View

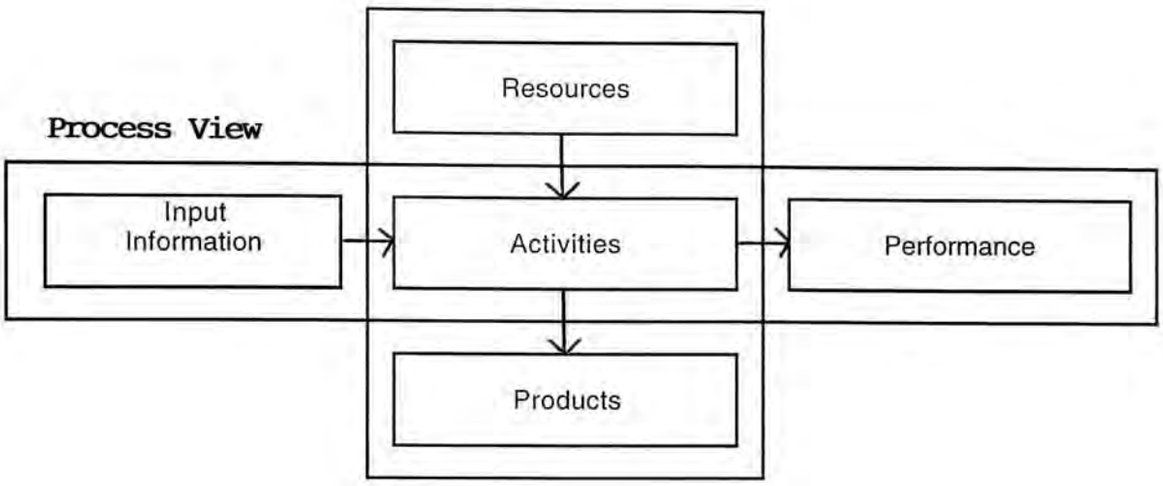


Figure 2

Expanded ABC Logical Model Example
Cost View

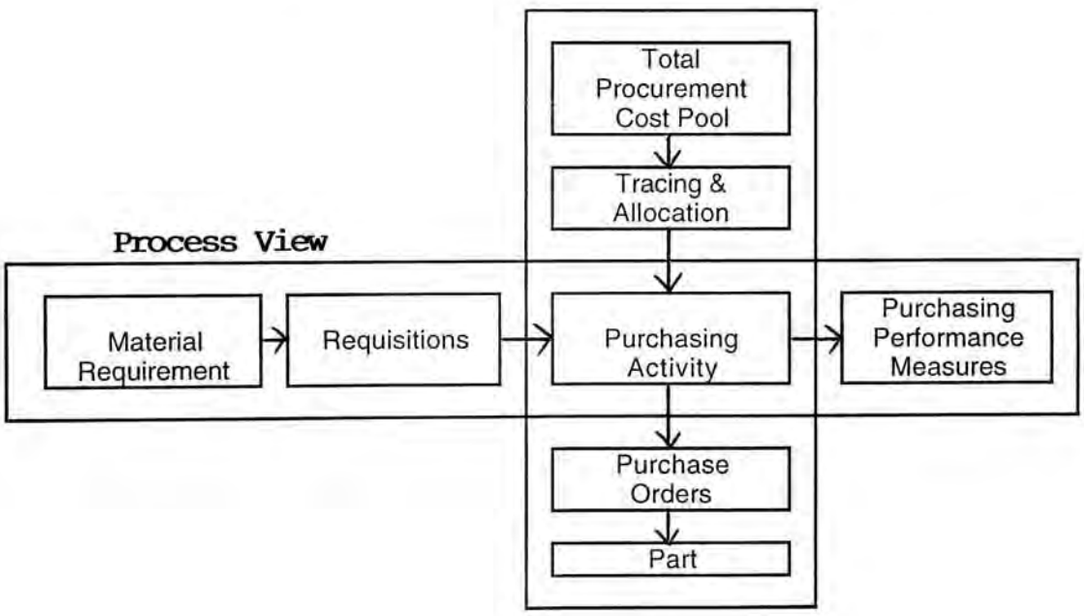
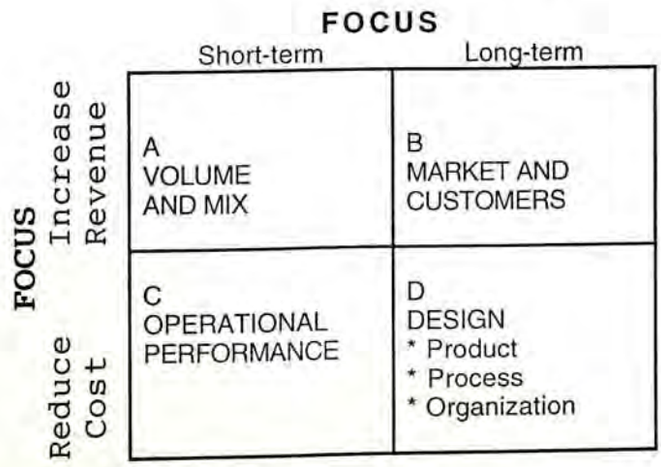


Figure 3

ABC Decision Matrix



CHAPTER III

ASIAN PACIFIC FORUM

This paper will continue with a comparison of ABC development and implementation in the context of Western and Asian Pacific. The cultural as well as the organization behavioral difference are suggested to affect the ultimate success of ABC systems. The failure or at least the slow pace of its implementation in Asian Pacific as compared to the many successful Western cases reflects the potent impact of cultural and behavioral factors.

Western Environment

As mentioned in the Chapter of literature review, there are a lot of companies in diversified sectors, manufacturing or service, using ABC. Moreover, the surveys done by CIMA and CMA on companies in the United Kingdom, Canada and United States also indicated the extensive degree of acceptance of ABC in Western

environment. It is interesting, and worth noticing some of their differences.

For example, most articles to date in the U.K. have focused on applications of ABC on decisions relating to the effect of product volume and variety on product cost. In the U.K., the early advocates of ABC have been the accounting functions within the industry and commence. The purpose has been to replace the existing, outdated standard costing system with the aim of producing more accurate product costs.

In the U.S., the picture has been very different. Most of ABC pioneers originated from the operations functions within companies. The purpose has been to use cost data to stimulate, prioritise and support cost-reduction activities, quite often as part of a company-wide improvement programme such as the case of Weyerhaeuser. This difference may just reflect the relative maturity of ABC users in the U.S. compared with those in the U.K.

The deep-rooted reason for the above difference could be the perceived ownership of the ABC systems. In the U.K., the driving force behind ABC is from within the finance function. Product cost in this type of company follows a logical flow of cost 'ownership' belonging to finance. For U.S. companies, the cost responsibility is shared by all functions of an organization and therefore the related cost modelling is also shared.

Canada appears to lag behind the United States in the

development of ABC. The results of the U.S.-based Cost Management Update (1991) study and the Canada study (CMA) are very similar, however, the U.S. survey was conducted almost two years earlier. Thus Canadian organizations appear to have taken two years longer than the U.S. ones to reach a similar stage of development.

ABC also appears to show different patterns of development in the United Kingdom and the United States from that in Canada; this is the second key finding mentioned in the Issues Paper published by CMA. U.K. and U.S. organizations appear more likely to have considered ABC than Canadian organizations. However, U.K.-based organizations appear more likely to have rejected ABC than the U.S. counterparts. Taking a close look at the surveys, 6% of the respondent U.K.-based organizations had implemented ABC. In contrast, 36% of the respondent U.S.-based organizations and 14% of the respondent Canadian-based organization had done so. Only 4% of the respondent Canada organizations had assessed and rejected ABC, compared to 9% of U.K. organizations.

There are some similarities among Canada, the United States and the United Kingdom. For example, the overall basic design of ABC systems in Canada are consistent with those in the U.K. and the U.S. for they all consider its behavioral impact on employees, and the value of a more accurate profit analysis by different customers.

As regards the Asian Pacific environment, ABC seems to be

in an infant stage and is yet to be developed.

ASIAN PACIFIC ENVIRONMENT

Not much published regional materials on ABC can be easily found. Apparently, the researches on ABC in this region so far are on a much smaller scale than in the West, and it is in academic area. For example, it is noted that in the References section of the Issues Paper of CMA mentioned above, an unpublished Masters of Accounting Project by R. Anwar, University of Waterloo (Winter 1992) is listed, namely, "Activity-Based Costing: A Review of Concepts and Potential Impediments to Adopting ABC by Indonesian Firms."

Another unpublished paper, again, a relatively small scale survey done as an undergraduate honours project report by S.W. Liu, Hong Kong Baptist College (May 1993), "Activity-Based Product Costing in Electronic and Electrical Products Industry in Hong Kong" is noted. With the help of the original writer, a brief extract of the study is found and summarised below:

The scope of the survey is concerned with the methods of allocations of indirect costs to products in the electrical and electronic products industry in Hong Kong. The reason of choosing this population, according to Liu. is that the manufacturing process in this industry often involves numerous activities, so that the overhead costs may be large. On the other hand, many production processes like the electronic

components insertions and soldering which are performed manually have been replaced by automation, so it is now less labour intensive. Further, many different kinds of products may be produced in one company. The industry having these characteristics is most suitable to adopt the ABC method.

The research has three main objectives:

1. To point out the reasons why some companies use ABC.

2. To find out the common characteristics of these companies.

3. To investigate whether ABC is useful in the electronic and electrical products industry in Hong Kong's environment.

Of the 280 questionnaires sent, 52 were returned (a response rate of 18.6%). Of the 52 responding companies, 5 companies did not complete the questionnaires, but returned it with a covering letter explaining the reasons, largely implicating a matter of organizational secret. From the 47 usable questionnaires, only 4 companies reported that they are using ABC (unfortunately, the writer declined to disclose the names of these companies), two are trying to install the ABC, the remaining 41 companies are using the traditional costing approach. Only one company does not know what ABC is, as compared to 30% in the CMA survey on Canada practice.

From the survey, it was found that the companies of the

electrical and electronic products using ABC have several characteristics. First they have more varieties of products that are customer made. Second, they have direct labour costs that are smaller than other companies that do not use ABC. Third, they have higher overheads compared with other companies. These features are the prerequisite of the valuable ABC systems as described in the previous chapter.

Discovered from the survey, the major reason for a low implementing rate in Hong Kong companies is that they are managed by Chinese. Most of them have conservative culture[17]. They think that stability is the best strategy, so they always reject any change. Further, the research and development costs spent on new technology - process or product - normally amount to a large sum of money, which is less likely to be expended in Hong Kong hi-tech companies than that in the United States and the United Kingdom; therefore, Hong Kong companies have less overall overheads to allocate to products. Moreover, the size of business in Hong Kong is usually small because they are usually managed by the family circles.

Organization Behavioral Contrast

Organizations are primarily collections of people working towards some more or less coordinated goals; however, in the

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[17] R.I. Westwood, Organization Behaviour, Southeast Asian Perspective, Longman Group (Far East) Ltd, First Edition, 1992.

process of accomplishing these, conflicts often arise. Owing to the cultural differences, the way of dealing with conflicts caused by a new system can be quite different.

Some of the Chinese traditional values on employees' participation in organization[18] are as follows:

1. Conform with the existing order and respect the authority.

Chinese children are trained to be quiet and tractable, and instant, exact and complete obedience are the ideal behaviour. They are expected to respect the authority without questioning. In an organization context, subordinates are supposed to follow the rules. They are not encouraged to take initiatives, make voluntary opinions and depart from standard procedures.

2. Avoid direct criticism to save the 'face' of superiors.

It is common in the West for employees to be assertive and to express their opinions and disagreement directly to the supervisors or even appeal to the management. However, this is not the case for the Chinese.

When subordinates disagree with their superiors on their judgement, they are supposed to follow the basic rule "honour the hierarchy first, your vision of truth second". They should avoid

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[18] R.A. Baron and J. Greenbery, Behaviour in Organizations, Understanding and Managing the Human Side of Work, Allyn and Bacon, 3rd Edition, 1990

face-to-face confrontation. If possible, they should tactfully talk to the superiors in private with mildly ambiguous language so as not to give the superiors the feeling that their comments would be offending them. Or the subordinates should talk to a third party of equivalent rank with their superiors and request him to tell their disagreement of grievances to the superiors. Direct criticism should be avoided. If not, the superiors will feel that the subordinates challenge their authority and the superiors will be offended.

3. Not to be involved in the organization's decision making unless they are asked to provide opinions, a top-down approach:

Chinese leaders, unlike their Western counterparts, are very authoritarian. They are not required to justify their decisions openly. Their authority provides them with the absolute right to make decisions. Employees will be asked to provide comments and opinions when the supervisor feels the need. They have to present their opinions also in a very subtle way so as not to be too deviant from what the supervisor has in mind. Even though the opinions are accepted, the employees will not be praised publicly but more often in private.

Therefore, given the traditional concepts of Chinese management, employees' participation is not encouraged. Instead, employees are supposed to be quiet and obedient.

The paper published in Summer 1992, Organization-Development Journal[19], Westwood and Kirbride examine approaches to conflict-handling adopted by Chinese, and contrasts them with Western cases. They also lay out certain key traditional Chinese values embedded in the culture on both handling styles and resolution behaviours. The key traditional Chinese values include a sense of reciprocity, harmony - a central Confucian percept, collectivism, conformity, high power distance, a regard of face and shame and "guangxi".

A version of Thomas-Kilman Conflict Model Instrument was administered to examine the conflict-handling approach of the two cultural contexts. Five instrument measures of conflict orientations were identified as competing, collaborating, compromising, avoiding and accommodating. It was found that the Chinese executives favoured the less assertive "compromising" and "avoiding" styles; whereas, the Western executives displayed an inclination towards the more assertive "collaborating" and "competing" styles.

In general, any intervention that can be interpreted as a challenge to authority and hierarchy, or that threatens with the need to open up or that causes a confronting conflict situations, which inevitably call for high level of self disclosure is not likely to meet with an enthusiastic response. An example would be the budgetary process; board figures are normally used by

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[19] R.I. Westwood and S.F. Kirbride, "Chinese Conflict Behaviour : Cultural Antecedents and Behavioral Consequences", Organization Development Journal, Summer Vol 10(2), pp.13-19

senior Chinese executives, instead of specific data. This well explains why business in an Asian context, mostly dominated by Chinese Confucian culture, is less receptive to a totally new system change like ABC.

CHAPTER IV

CASE STUDY

THE COMPANY

The Company, Lafe Computer Magnetics Co. Ltd. (hereafter abbreviated as LCM) was incorporated in Hong Kong in 1982. Initially, LCM was an Original Equipment Manufacturer that produced major components used for the production of magnetic heads. In 1984, LCM moved part of its production line back to Panyu, a location close to Guangzhou and Hong Kong, and formed the PRC joint venture (JV) to capitalise on the advantages of lower production labour and land costs in PRC at a time when the manufacturing of magnetic heads became cost conscious and price competitive.

The JV of LCM started in a single factory building and now has developed into an industrial park occupying a site of over 240,000 square feet. With enhanced production facilities in Panyu, in 1984, LCM broadened its product range to include the

manufacturing of magnetic tape heads. In 1987, LCM commenced the production of Thin Film Head Gimble Assembly and Head Stack Assembly for hard disk drives. In 1990, LCM was able to produce high performance tape heads for very high storage capacity tape drives. At present, LCM is engaged in the design, development and manufacture of a wide range of magnetic heads for use in personal, mini and mainframe computers.

LCM utilises two major industrial buildings of around 300,000 square feet working space and a third building of around 45,000 square feet as the canteen and the staff dormitory.

Although the manufacturing facilities are mainly located in the PRC, the operations in Hong Kong remain important. The LCM's main operations in Hong Kong are the product development, prototype and pilot production, material sourcing, master scheduling, financial control, marketing and overall management. In addition, LCM possesses in-house tool room support in Hong Kong and in the PRC which provides high precision as well as quick turn-around tooling and fixture supports to production and to new product development. In total, LCM employs a workforce of approximately 4,000, of which qualified engineers and well-trained technicians exceed 400 people.

The principal manufacturers of the world's magnetic heads are located in the PRC, Japan, Thailand, Korea and Malaysia. Competition is keen in the magnetic heads and the computer disk drive industries. As a result, manufacturers of computer drives

normally work closely with manufacturers of magnetic heads in order to obtain an optimum pricing structure, the highest product quality and an efficient delivery of products.

MANAGEMENT STRATEGY

The six people management team are one president, two vice-presidents (Production and Quality), three directors (Engineering, Production and Quality). All of them are technically strong engineer-background people of over ten years of computer disk drives head experience. The president is also the one who is in charge of the Marketing Department responsible for pricing issues.

The whole operation is divided into three key divisions. Two of the divisions supply OEM assembly parts to a single U.S. customer amounting to approximately eighty percentage of turnover and ninety percentage of profit. The U.S. customer has arranged with LCM a five-years cost-plus revolving contract.

PRODUCT COSTING

Total costs are divided into two parts under LCM's existing costing systems. They are material costs and value-added, each of which is about fifty percent. Material costs include mainly direct material, indirect material and purchase related expenses,

which are attributable to individual products; whereas, value-added includes direct labour, indirect labour and staff salary as well as overheads, which are fifteen, fifteen and twenty percent respectively on total costs. A large amount of the overheads are related to repair and maintenance and depreciation costs. These costs are not specifically allocatable to individual products.

Since material is identifiable to the product levels, to determine accurate product costing, the focal point is the allocation of value-added. The management has decided to use direct labour hours, which includes production hours, quality control hours, and idle and training hours for allocation since it is the only reliable source of information available at present.

The management is aware of the shortcomings of this approach because the portion of direct labour represents less than one-third of the total value-added. Also, the major customer has been pushing hard for ABC implementation through an appointed management consultancy firm, which has recently successfully implemented the JIT line on LCM's production floor. The management is not very enthusiastic towards this new costing system. They think that it is costly to implement the system just for this customer since the contractual payback is five years. Also, based upon a cost-plus contract, there is really no incentive to improve the underlying cost structure by identifying the activities and to re-align the process so as to

eliminate the unnecessary costs.

The only improvement on product costing that the management would like to have in the near future is to identify the allocation of indirect labour consumption to product level. The management suggests that production supervisors, technicians and engineers can divide their productive time among projects under their responsibility.

PRICING

The disk drive business is very competitive given that it has an equally competitive mother PC and mainframe market. Costs are driven down rapidly because there is always pressure to drive down piece part prices to meet competition. Therefore, according to the contract agreed between the customer and LCM, pricing is based on the mark-up on the total cost. In effect, the mark-up is the pure profit.

In this aspect, the management seems to have a simple approach to determine pricing strategy. In fact, under the current product costing method, allocation based on direct labour hours on a basket of overheads and indirect payroll, it would be unfair to immature products which require a lot of training hours. This is because more value-added would hence be allocated to them, and these products become price uncompetitive. They would therefore be killed in the introductory phase.

Moreover, the management is faced with a dilemma of whether to keep pushing down the cost and hence the profit for a better price to the customer. Low price means less turnover and cash flow as well as profit, but it is also more price competitive, a two-way sword faced by the LCM management.

IMPLEMENTATION : THE STRUGGLE

Since the inception of the contract, the U.S. customer has requested an improved costing system. The customer has suggested ABC, the same system that is being used in their group companies in the U.S. and a project team within LCM has been drawn, including Department of Engineering, Production Material Control (PMC), Purchasing and Finance and Accounting (F&A) to evaluate the proposed costing system.

The Customer

The goal of customer is very clear. It wants a better product costing picture and to understand the cost structure of LCM. Through the ABC system, unnecessary activities can be identified and idle costs can be eliminated. The cost savings will ultimately be reflected in the better bottom line to the customer through a cheaper transfer pricing.

The customer sent ABC materials to both LCM management and

F&A staffs and had them comments on the feasibility of implementing the costing system and, at the same time, appointed a management consultancy firm to assist LCM to design, evaluate and possibly implement ABC system.

It is clear that the customer wants to play a long-term strategy on LCM by setting it up as an off-shore permanent piece part manufacturer; however, LCM will eventually be very low value-added since costs will need to be pushed down continuously for the customer to stay competitive globally.

Opportunities and Threats

The project team evaluation has given mixed responses. Comments from the department head of various disciplines are summarized as follows:

(1) Engineering

It is difficult, if not impossible to define detailed activities and many engineers serve several projects at the same time. It would also create a lot of paper work and the engineer just would have no additional time to fill extra forms, given the fact that they have to work long over-time already.

An example is quoted. Inspection activities of the IQC engineers can be used as the basis for cost allocation to

projects. However, when they inspect common parts, which are usable for multiple products, they cannot know how to allocate their activities to specific products during incoming inspection.

(2) Finance & Accounting

The manager agrees that ABC is an improved costing system, and the implementation will be an elimination of unnecessary activities and costs. However, it is a system that requires a total commitment of all the departments involved. F&A can serve as a reporting and advising function, and it is only as good as the relevant and reliable information received, consolidated and presented to reflect a true cost picture to the appropriate level of management concerned.

(3) Production Material Control

The effect on this department seems to be minimum since its main area of concern is material, which is generally identifiable by products, except for a small portion, about one to two percent of common parts, which are identified only through actual consumption on the production floor.

However, it is unwilling to endorse the new system because any improvement on product costing would ultimately highlight all elements of cost, including material costs and value-added. If value-added decreases substantially, the material cost portion's relative ratio to total cost would increase, the focal point

would shift to the managing of materials, whether material scheduling or control of scrap.

(4) Purchasing

Increased activities with the U.S. customer require additional headcounts for supporting departments. Purchasing is the only department that can successfully acquire additional headcounts both in Hong Kong and in PRC. The reason is that it needs more local material in PRC as well as more specialised parts, which are not readily available in PRC and Hong Kong. Therefore, a strong supportive team in Hong Kong is still needed to source these parts in other countries.

The Purchasing head stated that he always reserves two extra helping hands to deal with high staff turnover, particularly in view of the mobility of junior graded staff in current Hong Kong job markets. If activities are clearly identified and idleness eliminated, he cannot play with the existing buffer he now has.

The fact that there are different departmental goals among the organization prohibits a would-be smooth organization-wide costing system implementation.

THE HUMAN FACTOR

It is clear that middle managers of different departments

have diversified goals. In general, they want stability. They do not want to see any change that brings uncertainty to their respective territories. The new ABC system can have profound effects on their in-charge operations that deter them from being actively involved in pursuing the system. This is very typical in a Chinese organization where normally a top-down approach is needed to push for any drastic change. The degree of respect for senior personnel is very high.

Therefore, it would be more successful, if the management advocated the system. However, the management is reluctant to do so for the following seemingly personal reasons:

(1) The management does not want to reveal LCM's underlying cost structure to the customer.

(2) The management wants to keep its handsome bonus which is based on annual turnover.

(3) The management likes to maintain a high profit margin so that it can be accountable to the board.

The above reasons all reflect a rather short-term planning horizon of the existing management team. This is, to some extent, caused by the current unstable political environment of Hong Kong.

The evaluation of ABC system continues, despite the non-

commitment of all levels. Because of the growing pressure from the customers, LCM management needs to please the customer by keeping the project team going.

In January 1994, the project team put forward a detailed design and implementation project schedule and identified the activities of key departments. Then, the management had to decide whether a green light would be given for a full-fledge system implementation.

THE STALEMATE

The management initially wanted to buy more time by suggesting to extend the "study" time of the project. However, the management finally has to decide whether to support the system through in February, 1994 when the customer's delegate was due to arrive to wrap up the project. The management gives the following reasons as the excuse of not implementing the system:

(1) The system requires the preparation of a lot of paperwork which is against the 'paperless' environment purported in Computer world.

(2) Since additional staff is needed for the set-up of the system as well as to support the system afterwards, the cost will build up and may not justify the benefit afterwards.

(3) The effect of common parts will blur the accuracy of individual product cost; therefore, a basket of related product lines is counter proposed.

The customer is very upset and hence threatens to withdraw from the contract once it is expired. Of course, it understands that it will be equally difficult to find a new sub-contractor.

The What-If Scenario

Should ABC system be employed, there will be a profound effect on the company strategy towards product development, pricing, manpower planning and process re-engineering.

(1) Product Cost and Pricing

Appendix I shows the product cost calculation under the traditional and ABC costing for 2 selected products. The results are summarized as follows:

PRODUCTS	TRADITIONAL	ABC COST	PRICE
H	$84.12	$59.27	$90.00
S	$56.32	$149.49	$100.00

Since the customer is using ABC and LCM is using traditional cost accounting approach, from LCM's view point, the price given by the customer for product H is too low that it covers the cost

marginally and it will forgo its production when capacity is at the maximum and resources are limited. On the other hand, the price offers for product S is substantially higher than the cost and that $43.68 profit can be made if accepting the offer, so LCM under this condition will accept the offer for product S. However, in fact, LCM is getting a loss of $80.22, including the $49.49 out-of-pocket loss on S and $30.73 opportunity loss for not accepting the offer of product H.

(2) Manpower Support and Re-engineering

We cannot under-estimate the support needed from operations department. It is a system requiring a total commitment from all disciplines. One of the key departments affected is the production department, which involves detail assembly works. Appendix II shows the possible re-engineering of direct labour under the ABC implementation, assuming a 15% improvement on process (4) and (5) combined. A overall saving on standard time of 5.1% is achieved.

The system also requires a company-wide strategic manpower planning. For example, the extra headcounts in the Purchasing department mentioned in the Chapter 4 case study should be eliminated. If additional headcounts are needed to fill in paperwork and data-entry into the system, the required headcounts can be shifted from the excessive departments.

CHAPTER V

LIMITATIONS AND CONCLUSIONS

LIMITATION

This paper has portrayed a company that fails to materialize the benefits of establishing an ABC costing system, which contrasts to the successful cases outlined in the Chapter 2, the Literature review part.

Surveys in many Western countries have shown an increasing trend of evaluation and adoption of this system. Compared to the introductory stage of development in Asia context, a lot of work has to be done both by academics and practitioners.

The writer has sent out questionnaires to the Part-time three year MBA students in order to understand how widely the system is adopted or known in-town. Unfortunately, no returns were completed at all and some of them reply verbally that they have not heard of the system except in a cost and managerial

class. Although there are a few cases of ABC evaluations mentioned in the unpublished local survey, the scope of research is narrowed only to the electronic and electrical industry in Hong Kong.

The writer believes that the ABC system will gradually replace the traditional system due to its benefit offered. ABC is a new costing method that does not have many local surveys done on its implementations in Hong Kong environment. Therefore, further research is needed and encouraged.

CONCLUSION

It has shown that ABC lies in its benefits of providing better product costing information, eliminating unnecessary activities and improving process flow. It is a system most suitable when

* Significant overhead costs are not easily assigned to individual products.

* There are a variety of products.

* Demands on overhead resources shared by individual products are not proportional to the volume of units.

It has also shown that organization behaviour has a profound effect on a company-wide system implementation like ABC. The case in Chapter four illustrated that diverse department goals tend to hinder a system implementation, and ABC implementation requires a firm management commitment. A short-term planning horizon simply can not reap the cost-saving benefit of ABC. It is shown from the case study, that through the use of ABC, significantly better cost and pricing decisions can be made, in addition to the manpower re-engineering.

Moreover, in the context of Asian countries where Chinese dominate, major decisions are made by a very few people within a small and rather conservative group, which is unlikely to push for major changes in short-term. Equally, it is also not likely that a younger middle manager, with a latest costing methodology exposure like ABC, will challenge the decisions of the senior management.

Taking this together, it is why Asian countries lag behind their Western counterpart. However, global competition will always drive down the unnecessary operating costs in any business and will be the strong thrust behind to push the eventual adoption of an improved costing system such as ABC.

Described in the February 21, 1994 issue of the Fortune Magazine[20], "the new golden rule of business for supplier-customer relationship is a cooperative one, rather than the formerly adversarial one, through the process of ABC. This may involve the supplier to open his company books to the customer, to lay out his cost structure. In return, the customer can wave away whole categories of cost." For instance, there is no need to pay for sales and marketing tasks; this is beneficial to both parties in terms of better pricing and cost savings.

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[20] Myron Magnet, "The New Golden Rule of Business", Fortune, Feb. 21, 1994, pp.60-64

APPENDIX I

	Product H	Product S	Total
1. Unit produced (Normal Batch)	30000	8000	
2. Piece part usage (units)	5	11	
3. Direct material cost (BOM)	$25	$11	$838,000.00
4. Direct labour hour	1.3	1	47,000
5. Machine hours	1.3	2	55,000
6. Direct labour cost	$8	$6	
7. Number of production runs	3	20	23
8. Number of deliveries	9	20	29
9. Number of receipts (2 x 7)	15	220	235
10. Number of production orders	15	25	40
11. Overhead costs :	$		
Set-up	30,000.00		
Depreciation	760,000.00		
Receiving	435,000.00		
Packing	250,000.00		
Engineering	373,000.00		
	1,848,000.00		
	==========		

Traditional approach :

Total overhead ($1,848,000.00)/Total direct labour hours (47,000) = $39.32

	Product H	Product S
Direct labour	$8.00	$6.00
Direct materials	25.00	11.00
Overhead*	51.12	39.32
Total manufacturing cost per unit	84.12	56.32
	=====	=====

Activity Based Costing Approach

Cost per set-up = Set-up costs ($30,000)/Number of production runs (23)

= $1,304.00

Cost per receiving order = Receiving cost ($435,000)/Number of receipt (235)

= $1,851.00

Cost per packing order = Packing cost ($250,000)/Number of deliveries (29)

= $8,621.00

Cost per production order = Engineering cost ($373,000)/Number of orders (40)

= $9,325

	Product H	Product S
Direct labour	$8.00	6.00
Direct materials	25.00	11.00
Machine overhead	17.96	27.64
Set-up costs	0.13	3.26
Receiving	0.93	50.90
Packing	2.59	21.55
Engineering	4.66	29.14
Total manufacturing cost per unit	59.27	149.49

APPENDIX II

Process Re-Engineering Through ABC

		Product S	
Assembly Department		STD (Per Hour)	NEW STD
(1)	Load	0.1869	0.1869
(2)	WYKO (Heat Treatment)	0.2500	0.2500
(3)	Head Clean	0.2018	0.2018
(4)	High Power	0.1612	
(5)	QA	0.2000	0.3100 *
		0.9999	0.9487
	Net saving :		**5.1%**

ABC Improvement :

(4) & (5) combined and achieve a standard time reduction of 15% overall.

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